EXHIBIT Q

EXHIBIT 4
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** CONFIDENTIAL **

IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

CISCO SYSTEMS, INC.,

      Plaintiff,

v.   No. 5:14-cv-05344-BLF

ARISTA NETWORKS, INC.,

      Defendant.

_____/

** CONFIDENTIAL **

VIDEOTAPED DEPOSITION OF JOHN R. BLACK, Ph.D.

THURSDAY, JUNE 30, 2016

SAN FRANCISCO, CALIFORNIA

DEBORAH MAYER, CSR 9654, RPR CRR CRP CLR

U.S. LEGAL SUPPORT - SAN FRANCISCO

John Brunick, D. Confidential

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1   answer is no, I haven't done anything with the

2   university to help them in an automated fashion to

3   detect plagiarism or copying.

4   Q.   Other than the one paper we discussed, have you

10:47   5   done any research in the area of plagiarism and how to

6   detect plagiarism?

7   MR. WONG: Objection, vague.

8   A.   So research is a fuzzy thing. I certainly

9   don't have published papers. I think we just talked

10:48   10   about that. I did consider, back in my graduate days,

11   trying to more fully flesh out the software I had worked

12   on to see if maybe it could have turned into a paper,

13   but that didn't happen.

14   BY MR. HOLMES:

10:48   15   Q.   Do you consider yourself to be an expert in

16   compliance with copyright laws?

17   MR. WONG: Objection, vague.

18   A.   I'm not sure what that means. I have been --

19   I've had the legal standards explained to me by Arista's

10:48   20   attorneys to a level that I can understand them as a

21   non-lawyer. Then I've, as explained in my reports,

22   applied those standards to the technology that I do have

23   a deep understanding of to arrive at the opinions that

24   are set forth in my reports.

10:49   25   ///

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1   BY MR. HOLMES:

2   Q.   Have you ever held yourself out as an expert in

3   copyright law?

4   A.   Not as a lawyer, no. I don't know what that

5   means other than I'm not a lawyer. I have a paper, like

6   I said, that talks about copyright law as a technical

7   expert, but not as a lawyer. I wouldn't walk around

8   saying I'm an expert in copyright law and people should

9   listen to me when I opine about the law.

10   Q.   Fair enough. Do you consider yourself to be an

11 expert in organizational behavior?

12   MR. WONG: Objection, vague.

13   A.   I don't know what that is, so I guess I can't

14 be an expert in something if I don't know what it is.

15 BY MR. HOLMES:

16   Q.   Do you consider yourself to be an expert in

17 economics?

18   MR. WONG: Objection, vague.

19   A.   No.

20 BY MR. HOLMES:

21   Q.   Do you consider yourself to be an expert in

22 calculating damages?

23   MR. WONG: Same objection, vague.

24   A.   Certainly in any technical questions that apply

25 to my expertise, I might be helpful there, but I'm not a

1   damages expert. I've never held myself out as a damages

2   expert.

3   BY MR. HOLMES:

4   Q.   Have you held yourself out as being an expert

10:50   5   in consumer behavior?

6   MR. WONG: Same objection, vague.

7   A.   Only to the extent that I can provide technical

8   expertise, but not as any kind of behavioral expert or

9   psychologist.

10:50   10   BY MR. HOLMES:

11   Q.   Do you consider yourself to be an expert in the

12   creation of industry standards?

13   MR. WONG: Same objection, vague.

14   A.   I don't think there is such a thing as an

10:50   15   expert in the creation of industry standards. I've

16   participated in creating technology that has been

17   standardized or attempted to be standardized in various

18   fashions, but I don't think there can be something that

19   you described as an "expert" in the creation of industry

10:50   20   standards.

21   BY MR. HOLMES:

22   Q.   So is it fair to say you've never held yourself

23   out to be an expert in the creation of industry

24   standards?

10:50   25   MR. WONG: Objection, vague.

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1   A.   I've certainly never said those words about

2   myself, no.

3   BY MR. HOLMES:

4   Q.   Have you ever held yourself out to be an expert

10:51   5   in the creation of de facto standards?

6   MR. WONG: Same objection.

7   A.   I've certainly never said those words about

8   myself either, no.

9   BY MR. HOLMES:

10:51   10   Q.   Are you currently a member of any standards

11   organizations?

12   A.   I'm not sure. I may be a member of the IEEE, I

13   would have to check. I'm a member of the IACR, which is

14   the International Association for Cryptologic Research.

10:51   15   Q.   Is that a standards body?

16   A.   I'm actually not sure if we issue standards

17   because I'm not involved in that part of the

18   organization. We may not, actually. And that would be

19   it.

10:51   20   Q.   Now, can you take a look at Exhibit 1 to your

21   Opening Report and let me know if you've listed any

22   membership in the IEEE.

23   A.   I don't think I list membership in any

24   organizations, and I've been a member of various

10:52   25   organizations, and I know some people do list that in

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1   their academic CV. I should know where to look, right,

2   it's my CV, but I don't see a list of professional

3   organization memberships listed here.

4   Q.   So other than the IACR, as you sit here right

10:53   5   now, are you aware of any other -- well, strike that.

6   As you sit here right now, I believe your

7   testimony was that you may be a member of the IEEE but

8   you're not sure, you'd have to check; is that fair?

9   A.   That's fair.

10:53   10   Q.   Would you be able to check on a break, for

11   instance?

12   A.   Maybe. I think so.

13   Q.   At the next break, maybe if you could do that

14   I'd appreciate it so we can get that one out of the way.

10:53   15   A.   Sure.

16   Q.   Other than the IACR, are there any other

17   organizations you're affiliated with on a regular basis?

18   A.   I also may be a member of the ACM. I certainly

19   have been in the past. I'm sorry, I don't keep close

10:53   20   track of this. My membership lapses. It's not a

21   day-to-day part of my life, these memberships.

22   Q.   And is the ACM, is that a standards-setting

23   body?

24   A.   I don't believe so.

10:54   25   Q.   Now, can you turn, please, Dr. Black, to page

1   28 of your Opening Report, paragraph 72. I know there's

2   a lot of documents. I'm trying to keep everything

3   straight as well.

4   A.   We visited paragraph 28, now we're going to

10:54   5   page 28?

6   Q.   Page 28, paragraph 72.

7   A.   I'm there.

8   Q.   Now, the first sentence of paragraph 72 says:

9   "Of those standards organizations that

10:54   10   publish networking standards, the largest

11   is undoubtedly ISO (International

12   Organization for Standardization)."

13   Did I read that right?

14   A.   I think you did.

10:55   15   Q.   Now, if you read paragraph 72, you also mention

16   ANSI as an important standards body, the IEEE, the

17   EIA/TIA, the IETF, W3C, ICANN, that's I-C-A-N-N; do you

18   see that you list those various standards bodies in

19   paragraph 72?

10:55   20   A.   I see that.

21   Q.   And you've referred to them as "important"

22   standards bodies, right?

23   A.   I think that's a fair reading of the second

24   sentence, "other important standards bodies include."

10:55   25   Q.   Now, Dr. Black, are you a member of any of the

1   standards bodies that you list in paragraph 72?

2   A.   With the proviso that I'm once again uncertain

3   about the IEEE, the rest of them, no.

4   Q.   Do you recall at any time in your career having

10:56   5   worked on any -- strike that.

6   Do you recall at any time in your career

7   participating in any working groups at the IEEE?

8   A.   I have never been physically present for any

9   working group meetings of the IEEE, no.

10:56   10   Q.   Have you been a member of any committees at the

11   IEEE?

12   A.   That's harder to answer. This reaches back now

13   to my undergraduate career, but we had a chapter, and

14   embarrassingly, I don't remember if I was the president

10:57   15   or not, but I think I might have been, and I don't know

16   if that qualifies under your question. I think I was

17   the Vice President.

18   Q.   Do you recall when that was?

19   A.   It would have been 1984 to 1988, that

10:57   20   timeframe. That's when my undergraduate experience

21   occurred.

22   Q.   Do you consider yourself to be an expert in --

23   strike that.

24   Do you consider yourself to be a survey expert?

10:57   25   MR. WONG: Objection, vague.

1   A.   What is a survey expert?

2   BY MR. HOLMES:

3   Q.   Well, do you have an understanding of what a

4   survey is?

10:57   5   A.   There are land surveys, there are sociological

6   surveys, there's a computer journal called Computer

7   Surveys; it can mean a whole bunch of different things.

8   Q.   What's your general understanding of the word

9   "survey" outside the context of any specific area?

10:58   10   A.   "Survey" is to take a broad look at land or

11   people or opinions or attitudes or thoughts or trends in

12   various -- almost any discipline one could imagine.

13   Q.   So with that understanding of what "survey"

14   means, have you ever held yourself out to be a survey

10:58   15   expert in any particular area?

16   MR. WONG: Objection, vague.

17   A.   I mean I've conducted surveys that would fit

18   under the definition I just gave. I've published book

19   chapters that survey certain areas of computer science

10:58   20   and list the highlights and summarize the nature of the

21   work. So in that sense -- but the word "survey" is so

22   broad and overarching, if somebody walked up to me and

23   said I'm an expert on surveys, I wouldn't have any

24   notion what that person meant.

10:59   25   ///

1   and provide a response to it, is that copying or

2   mimicking in your opinion?

3   MR. WONG: Objection, vague, incomplete

4   hypothetical.

12:09   5   A.   So let's take -- since I'm having a hard time

6   with the vagueness, let's take the example I gave where

7   I write a parser that accepts all strings. That's easy

8   to do. Then certainly the command abstraction you have

9   in mind, whatever it is, is accepted as valid. Is that

12:09   10   copying or mimicking? I can't see how one could

11   conceptually agree in that specific case.

12   BY MR. HOLMES:

13   Q.   Why not?

14   A.   Because to mimic, there has to be similar

12:10   15   behavior. And since words written on a page have no

16   behavior that I can discern, then that question is

17   completely and trivially no. Was there literal copying

18   of that command abstraction? Well, my parser is

19   basically three lines long; it just says okay to

12:10   20   everything you type. And so how one could conceivably

21   say that command abstraction has been copied into my

22   product, I don't see how you could get there. So I

23   think that one is also trivially no.

24   MR. HOLMES: Okay, great, let's take a break.

12:10   25   THE VIDEOGRAPHER: This marks the end of DVD 2

1   in the deposition of John Black. The time is 12:10 p.m.

2   Counsel, we're going off the record.

3   (Recess taken.)

4   THE VIDEOGRAPHER: Counsel, we're now back on

12:57   5   the record. This is the beginning of DVD 3 to the

6   deposition of John Black. The time is 9 -- sorry,

7   12:56 p.m.

8   THE WITNESS: Mr. Holmes, you asked me to look

9   during the break at my IEEE membership status. I've

12:57   10   done that, if you want to start there?

11   BY MR. HOLMES:

12   Q.   Sure, what did you find?

13   A.   So I'm not a member of IEEE.

14   Q.   Thank you for that.

12:57   15   I would like to direct your attention to page 8

16   of your Opening Report, page 8 paragraph 8, the heading

17   "summary of opinions." Let me know when you're there.

18   A.   And I'm sorry to go back again to something

19   else that I thought of just a minute ago that is a more

12:58   20   complete response to one of your earlier questions. If

21   I'm permitted to do that for a moment?

22   Q.   Sure. If you feel like you need to clarify the

23   record for some reason, please go ahead.

24   A.   We were talking about the creation of

12:58   25   standards, and I forgot to mention that there is a group

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1 called NIST, National Institute of Standards and

2 Technology, you've probably heard of them. A lot of the

3 work I've done, they're the appropriate standardization

4 body. They're not a group that takes membership, so I

12:58 5 don't have membership with them.

6   But I've participated in their workshops, I've

7 gone to their headquarters in Washington and supported

8 various algorithms, protocols and so forth that I've

9 helped invent to try to promulgate standardization. In

12:58 10 some cases, that's been successful. So you can find

11 NIST standards that carry my name. You can also find --

12 I'm sorry, you can also find RFCs that have my name,

13 which is a different body as you're well aware.

14 BY MR. HOLMES:

12:59 15   Q.   Are you currently actively involved with NIST?

16   A.   Only in a remote sense that I've, within the

17 past couple of years, offered some comments in response

18 to a proposed standard, but I'm not myself attempting to

19 promote something -- some of my work for standardization

12:59 20 under the NIST heading.

21   Q.   When was the last time you participated in a

22 NIST workshop?

23   A.   Probably 2011. There was one that met during

24 the crypto conference in Santa Barbara; I was on

12:59 25 sabbatical at that time and I remember sitting in on

1   one of their meetings at that time. That was with

2   respect to hash functions.

3   Q.   Have you ever held any leadership positions at

4   NIST?

13:00   5   MR. WONG: Objection, vague.

6   A.   No. Those positions are held by employees, not

7   by outsiders.

8   BY MR. HOLMES:

9   Q.   Okay, well, thank you for that.

13:00   10   Now, page 8 starting at paragraph 8, you've

11   got -- this section is entitled "summary of opinions,"

12   right?

13   A.   Yes, it is.

14   Q.   Okay. And from paragraphs 8, 9, 10, 11, right,

13:00   15   that's sort of the paragraphs that are within this

16   subsection; is that fair?

17   A.   It appears there are so-numbered paragraphs,

18   yes.

19   Q.   Now, if I understand your summary of opinions,

13:01   20   you provided opinions here about modes, prompts --

21   you've used the word "command," so I'm using it as

22   you've used it, "hierarchies" and "responses" in these

23   paragraphs. Is that a fair characterization?

24   A.   I'd have to review these few paragraphs, but I

13:01   25   think, just looking at paragraph 8, you seem to have

1   summarized it correctly.

2   Q.   Now, have you provided any opinions in either

3   one of your reports with respect to the technical

4   documents that Cisco has accused Arista of copying?

13:01   5   MR. WONG: Objection, vague.

6   A.   Could you clarify what you mean by "technical

7   documents"? Do you mean user manuals or more than

8   that?

9   BY MR. HOLMES:

13:02   10   Q.   I mean Cisco documents that could include user

11   manuals and other Cisco documents that relate to its

12   operating systems and its CLI.

13   A.   So you would encompass like technical documents

14   and so forth --

13:02   15   Q.   Yes?

16   A.   -- internal specifications, those sorts of

17   things?

18   Q.   That's correct.

19   A.   Thank you. Um, I'm actually not aware of any

13:02   20   allegations that include those kinds of latter technical

21   documents, internal functional documents, code

22   descriptions, those sorts of things. I believe that

23   some of the copyright registrations that Cisco holds has

24   words something like "and associated documentation";

13:02   25   some of them do. I haven't done any analysis on any

1   A.   Well, I mean, I say "defined and ratified."

2   I guess "created" is maybe a fair -- oh no, I say "which

3   are created," so yeah, that's fair.

4   Q.   What does "weigh their presence, adoption and

13:14 5   acceptance" mean?

6   A.   Weight of their presence, adoption --

7   Q.   I misspoke. Let me rephrase the question.

8   What does "weight of their presence, adoption,

9   and acceptance" mean in the context of paragraph 82?

13:14 10   A.   Um, I think that when one determines what a

11   de facto standard is, one looks at the pervasiveness of

12   the adoption of the elements of that standard and

13   says -- asks one's self is this just one company, one

14   group, or one university, or is this numerous and

13:15 15   widespread and pervasive? So weight obviously isn't

16   used here in terms of mass since it's meant to capture

17   the notion that it's ubiquitous, widespread, and

18   pervasive in a population.

19   Q.   Is there an objective way to measure weight?

13:15 20   MR. WONG: Objection, vague.

21   A.   Um, I think so. And I think that I've done a

22   huge amount of work to try to measure that objectively

23   by looking at specific vendors that are enumerated in

24   Appendix H of my Opening Report, and to ask objective

13:15 25   questions like what do their prompts, modes,

1   hierarchies, and command abstractions look like.

2   So I think the answer is yes, there are there

3   are objective measurements.

4   BY MR. HOLMES:

13:16   5   Q.   Now, is there any place that you can go to

6   check to make sure that you are applying those objective

7   measurements in the right way?

8   MR. WONG: Objection, vague.

9   A.   Yeah, I think so. I mean the objective

13:16   10   measurements I just described, things like modes and

11   prompts and command abstractions, hierarchies, I think

12   you can go to the manuals that describe the products

13   that you're trying to investigate and look to see. In

14   many cases -- I think in every case, the manuals that I

13:16   15   looked at told me what did the prompts look like, what

16   modes are available in these products, what command

17   abstractions are present in these products? So I think

18   that's the place you go to, to measure whether the

19   criteria you're looking for are present or not.

13:17   20   Q.   But is there any way for you to independently

21   verify that the methodology that you've just described

22   has been accepted in the industry as a way to do that

23   measurement?

24   MR. WONG: Objection, vague.

13:17   25   A.   I'm smiling only because I'm taking your

13:18

1   question to mean is there an industry standard for how

2   to measure an industry standard, something like that.

3   I think that the description I've given of what

4   "de facto standard" means is widely accepted. It sounds

5   circular. I just mean it's well understood what

6   "de facto standard" means and it's well understood, I

7   believe, to mean these things that I said, their

8   presence, adoption, and acceptance by vendors.

9   Now, it's a second step to now ask the

10   question, is a particular technology a de facto industry

11   standard, yes or no? And what you'd want to do is first

12   of all define the elements that you would want to look

13   for among those products. Then you'd want to do an

14   investigation to a large number of vendors and ask if

15   those elements are present.

16   Q.   Prior to this case, had you ever been asked to

17   provide opinions about whether or not a particular

18   technology was a de facto standard or not?

19   A.   When you say "provide opinions," do you mean in

20   a deposition or legal testimony?

21   Q.   Yes.

22   A.   I have not.

23   Q.   Prior to this case, have you ever been asked to

24   analyze, outside of the context of a formal deposition

25   or litigation, whether or not a particular technology

1   was a de facto standard?

2   MR. WONG: Objection, vague.

3   A.   I mean I've certainly been in conversations

4   where people would ask about whether something is a

13:19   5   de facto standard or not, or make assumptions that it is

6   or is not. But as far as undertaking hundreds of hours

7   of rigorous analysis, this is the first time I've

8   done that.

9   BY MR. HOLMES:

13:20   10   Q.   Now, just focussing in again on paragraph 82

11   and the statement we read:

12   "There are also de facto standards which

13   are created simply by the weight of their

14   presence, adoption, and acceptance by

13:20   15   vendors and customers in an industry."

16   In your opinion, is that an objective test or a

17   subjective test?

18   MR. WONG: Objection, vague, calls for a legal

19   conclusion.

13:20   20   A.   Once again, I think that there are objective

21   measurements that are brought to bear, and I've already

22   enumerated what I think those are.

23   As far as whether a given thing is -- complies

24   as an industry standard under those definitions or not,

13:20   25   I think there are going to be cases where it's

1   absolutely clear the answer is yes. There may be cases

2   where it's clear the answer is no, and there certainly

3   may be borderline cases where it's not clear and that

4   people apply their subjective judgment to make a

13:21   5   determination one way or the other. That said, I didn't

6   find any examples of that in my analysis.

7   I think every time I looked at a particular

8   product, it was either completely, clearly within these

9   definitions, within these requirements, or it wasn't.

13:21   10   That's unfortunately not the case in every set of

11   measurements you might want to apply sometimes.

12   Q.   So in paragraph 83 at the bottom of page 32

13   reads:

14   "A 'de facto standard' is a standard in

13:21   15   fact which is what 'de facto' means in

16   Latin, meaning that it's a standard because

17   it has become widely used over time, and

18   not because the standard was developed and

19   approved by a standards-setting body."

13:22   20   Did I read that right?

21   A.   I believe you did.

22   Q.   And that's your opinion, correct?

23   A.   Yes, it is.

24   Q.   What is the basis for this statement?

13:22   25   A.   This is more or less a definition of the term

1   "de facto standard." I mean the parenthetical we can

2   ignore. And it means, meaning it is a standard because

3   it has "become widely used over time" is essentially a

4   recapitulation of what paragraph 82 says, that it's

13:22   5   based on its weight of presence, adoption, and

6   acceptance by vendors is essentially a restatement of

7   saying "widely used" which is the phrase I used in

8   paragraph 83.

9   Q.   And how did you come up with this formulation

13:22   10   in 83?

11   A.   I mean it's a recapitulation of 82, and it's in

12   my own words.

13   Q.   And did you verify that your recapitulation in

14   83 has been used by other people as a definition of a

13:23   15   de facto standard?

16   A.   I mean I've had discussions about de facto

17   standards for decades. I cite to a place, a reference

18   in paragraph 82 that provides support for that

19   definition. I've never had anyone challenge that

13:23   20   definition in all the times I've used it or heard it

21   used. So I think those were the bases for my feeling

22   comfortable with interpreting the term "de facto

23   standard" as I've written it in paragraphs 82 and 83.

24   Q.   With respect to your statements in paragraph

13:23   25   83, could I go to any publication or somewhere online to

1   find that definition as you provided it?

2   MR. WONG: Objection, calls for speculation.

3   A.   I mean I'm sure that if you look up "de facto

4   standard" online you will get a bunch of hits. And I

13:24   5   would hope that most or even all of them agree with my

6   characterization of what that means. Like I said, I

7   provide a reference here. I'm sure there are others

8   that hopefully all accord with the same definition.

9   BY MR. HOLMES:

13:24   10   Q.   You provided a reference in 82 but not 83,

11   correct?

12   A.   That's correct. I mean, like I said before,

13   83 is meant to just summarize what 82 says when I say

14   "has become widely used over time."

13:24   15   Q.   So what does it mean to be used -- what does it

16   mean -- strike that.

17   What does it mean to be "widely used over

18   time"?

19   A.   Well, I think "over time" is self-evident

13:25   20   unless you have a question about it. Obviously it means

21   as the time passes from, say, in this specific case, the

22   late 60s all the way to 2016. The timeframe of course

23   is relative as far as what we're talking about, as far

24   as this industry standard goes.

13:25   25   "Widely used" is a notion that captures the

1   idea that there's widespread adoption, that it's not an

2   insignificant number of vendors or groups or individuals

3   or universities who are adopting this de facto standard.

4   I don't have in mind a number, like it must be more than

13:25   5   4, 8, or 12, or something like that. I think that there

6   isn't such a number in this case or in any case that you

7   can set. But I don't think that the lack of a strict

8   bright-line distinction between what is and isn't

9   doesn't mean that the concept can't have meaning.

13:26   10   Q.   So if I asked you how much time is required to

11   satisfy the over-time limitation of this definition,

12   what would you were answer be?

13   MR. WONG: Objection, incomplete hypothetical.

14   A.   I mean "over time" in some cases that I can

13:26   15   think of, adoption occurs very quickly, perhaps in the

16   matter of a span of just a few months, or even less,

17   sometimes in a couple of weeks. Other times, things

18   move extremely slowly and could take a very long period

19   of time. And in computers, long periods of time usually

13:26   20   mean a few years. Things move rapidly in that domain.

21   BY MR. HOLMES:

22   Q.   So is it fair to say that it depends upon what

23   market or technology you're looking at?

24   MR. WONG: Same objection.

13:27   25   A.   I think it depends on which standard you're

1   looking at.

2   BY MR. HOLMES:

3   Q.   And when you're looking at the "over time"

4   element of the de facto standard definitions you've

13:27   5   provided, is that a subjective or an objective test?

6   MR. WONG: Same objection.

7   A.   I think it's almost not at all limiting. I

8   mean time is going to pass. I don't quantify over a

9   large amount of time, or a short amount of time, I just

13:27   10   say "over time," and we can remove that as obviously

11   time transpires no matter what. But really, the

12   substantive part of that sentence is "widely used"

13   which is meant to encompass "weight of their presence,

14   adoption, and acceptance" as I state in paragraph 82.

13:28   15   BY MR. HOLMES:

16   Q.   How do you decide when something's widely used?

17   A.   Well --

18   MR. WONG: Objection, vague, incomplete

19   hypothetical. Go ahead.

13:28   20   A.   -- in this case, as painstakingly set forth in

21   Appendix H, I go and look at a large number of vendors,

22   something like 20 in this case, and do an investigation

23   to see if the elements that I am asking about are in

24   fact adopted by those vendors. And so knowing what I

13:28   25   know about this industry and this market, and knowing

1   determining that these examples were de facto industry

2   standards?

3   A.   So in each case, I looked up the RFC and looked

4   to see, made sure I had the latest one. RFCs aren't

13:41   5   necessarily standards. A lot of people miss that point.

6   RFC 1796 in fact is entitled "not all RFCs are

7   standards."

8   These technologies that are enumerated here

9   were, to my memory, widely adopted, widely used, widely

13:42   10   implemented, before they attained standards status in

11   maybe some cases and maybe never have in other cases.

12   As you probably know, becoming an actual Internet

13   standard, which is the crowning achievement on the

14   standards track, takes forever and is actually not

13:42   15   commonly achieved. I mean I have an informational

16   standard in one of the RFCs that will never see the

17   light of day, for example.

18   Q.   Now, you said "to my memory," widely attained.

19   Other than using your own memory, did you do anything

13:42   20   else to verify that these were de facto industry

21   standards?

22   MR. WONG: Objection, misstates prior

23   testimony.

24   A.   I mean, I relied somewhat on Mr. Lougheed's

13:43   25   testimony where he said in the case of RIP -- I'm not

1 sure, is RIP one of the seven? Probably not, huh?

2   MR. HOLMES: We'll get to RIP next.

3   THE WITNESS: I'm sorry, I don't mean to jump

4 ahead, I'm sorry.

13:43   5   MR. HOLMES: Feel free to review it. I don't

6 want to tell you what's in your report, but I know RIP

7 is discussed later.

8   THE WITNESS: I'm trying to observe the scope

9 of your question properly.

13:43   10   A.   So let's take an example. So RLogin, right. I

11 remember RLogin as a 22 year old university

12 undergraduate. It was available on every flavor of Unix

13 available to me as an undergraduate. The RC here is

14 dated 1991. So my perception was that everywhere I

13:43   15 went, there it was, that it was widely adopted,

16 everybody knew about it, and, within my cohort, knew how

17 to use it, understood how it worked, and it was well

18 after the fact that this RFC appeared.

19   So to answer your specific question, at the

13:44   20 time I wrote my report did I go back and try to get a

21 snapshot of history and culture and the understanding at

22 a time preceding the publication date of the RFC, no.

23 I'm going based on my recollection of my experiences in

24 the past.

13:44   25   Q.   And other than your recollections and

1   experiences in the past, did you do anything else to

2   verify that these are de facto standards?

3   MR. WONG: Objection, misstates testimony.

4   A.   When you say "these," the seven again?

13:45   5   BY MR. HOLMES:

6   Q.   The seven that are listed in paragraph 86.

7   A.   I mean, I certainly read the RFCs and

8   remembered the experiences I had and experiences of

9   people in my cohort had. But I didn't use the Wayback

13:45   10   Machine or something like that to try to go back. I'm

11   not sure how else you could do that, what you're

12   suggesting. So the answer is no, I didn't look to

13   historical records.

14   Q.   Now, the seven examples of de facto industry

13:45   15   standards, as you've characterized it, these are all --

16   strike that.

17   These seven examples that you've provided here

18   in paragraph 86, they all relate to procedures or

19   protocols, correct?

13:46   20   MR. WONG: Objection, compound.

21   A.   Yeah, I don't recall the details of some of

22   these. For example, RLogin is a way to login from one

23   computer to another, and I'm not sure if the RFC

24   specifies what the user interaction looks like or if it

13:46   25   only specifies what the underlying "protocol on the

1   wire," as we call it, looks like.

2   BY MR. HOLMES:

3   Q.   But if you read RLogin, which is number seven

4   on your list, the first sentence that you have here

13:46   5   describing, it says "this procedure," right?

6   A.   Yes.

7   Q.   So you've characterized it as a procedure at

8   least; is that fair?

9   A.   I mean it's absolutely true that I have,

13:47   10   because those are the words.

11   Q.   Right. So is it fair to say then that the BSDR

12   login, it's a procedure, right?

13   A.   I mean it's fair to say that if the RFC talks

14   about the user interaction, then that's part of the

13:47   15   de facto standard or now, the RFC. Otherwise, it's not.

16   My choice of procedure wasn't intended to limit what the

17   RFC says on its face.

18   Q.   But that's the words you used, right?

19   A.   It is the word I used.

13:47   20   Q.   If we just walk through all of these then,

21   number one, little "i" in paragraph 86 on page 34, you

22   start describing this particular RFC by saying "IGMP

23   snooping is a procedure," right?

24   A.   Yes, I do.

13:47   25   Q.   And for little "ii," the next one, you say

1   wouldn't then go oh, this thing is not following the

2   industry standard CLI.

3   There's an experience I expect. That

4   experience includes the acceptance of a few commands

13:57   5   like the ones I discussed. There's "show IP route."

6   There's "interface," blah, blah, blah. There's

7   "IP address," giving IP addresses to interfaces, OSPF

8   configuration, the way those rules work. I would expect

9   all of those to work in a standard way.

13:57   10   Q.   What do you mean by "common" in paragraph 127?

11   A.   Well, once again, there's no specific number I

12   have in mind when I say the more common commands. But

13   we can look to one of the appendices, I'm not sure which

14   one it is, maybe G, that gives a count based on command

13:58   15   abstractions, how widely adopted they are, how many

16   vendors support them. Then I would say certainly the

17   top winners in that list would qualify under the more

18   common CLI commands. I mean more commonly adopted is

19   what I meant.

13:58   20   Q.   There's no -- are you aware of a list I could

21   go refer to if I wanted to check and see what the common

22   commands are that are included in industry standard CLI?

23   MR. WONG: Objection, vague, incomplete

24   hypothetical.

13:58   25   A.   I think the list I just referenced is a handy

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1   reference for just that. That wasn't its intent. I

2   wasn't trying to -- I'm not going to publish it on the

3   Internet and say here's a helpful guide to which

4   commands you should learn first. But tutorials

13:59   5   oftentimes will unwittingly tell you what the common

6   commands are because you sort of need them to get

7   started or to do the basic tasks. So that's probably a

8   way to go, get an idea what the common commands are.

9   Most tutorials aren't going to start off with VRP

13:59   10   configuration or something else that's kind of obscure;

11   they'll start out with enable, config, show IP

12   interfaces, those kinds of commands.

13   Q.   And those types of commands are what you're

14   referring to when you say "common commands" in 127?

13:59   15   A.   When I say the "more common commands," yes.

16   Q.   Does EOS support commands that are not common,

17   as you've used that word here in paragraph 127?

18   A.   Yes, it does.

19   Q.   And how do you determine what's a common

14:00   20   command from a non-common command?

21   A.   Well, as we discussed earlier, there are --

22   there's no specific number which I would say this

23   command now has become common because it surpassed a

24   certain number of uses or number of vendor adoptions.

14:00   25   But I think in the case where Arista EOS supports a

1 particular command that is in a feature that isn't

2 widely used or -- and is unique, the command is unique

3 to Arista, then I think it's fair to say that that would

4 be a less common command.

14:01   5   Q.   Now, I know we discussed the concept of I think

6 it was "widely used" previously, and you used the term

7 here "widely supported"; what do you mean by "widely

8 supported" in paragraph 127?

9   A.   I see it. If I had a minute to re-read that

14:01 10 sentence, please.

11 (Perusing documents.)

12   A.   Okay. So by "supported" I mean that the vendor

13 has a product whose parser will accept that command as a

14 valid command. And by "widely," I mean that there are a

14:01 15 large number of such vendors who have such a product.

16   Q.   And can you give me a number as to what

17 satisfies "widely supported"?

18   A.   Once again, I don't. Just like "common," I

19 don't have a specific number at which I would say the

14:02 20 words "widely supported" vary from "rarely supported."

21   Q.   So if I asked you for the common CLI commands,

22 how many commands are on that list of more common CLI

23 commands --

24   MR. WONG: Objection, incomplete hypothetical.

14:02 25 ///

14:14 1 this term and follow it with words that accord well with

2 this definition that I've set forth. And so in that

3 sense, I've seen lots of documents that agree with and

4 support the definition that I've taken here.

14:14 5 BY MR. HOLMES:

6   Q.   But you don't cite those documents here, right?

7   MR. WONG: Objection, vague.

8   A.   I don't, but I cite those documents in other

9 places in my report. And so, I mean if you're

14:14 10 disappointed that I didn't repeat those citations here

11 in paragraph 171, to that extent, I apologize, but they

12 certainly are in my report.

13 BY MR. HOLMES:

14   Q.   We've talked about the word "common" in prior

14:15 15 paragraphs; is your use of the term common in paragraph

16 171 the same as the way you've been using it previously

17 in your report?

18   MR. WONG: Objection, vague.

19   A.   Yeah, I think before we used the word "common"

14:15 20 to mean widely adopted, and I think I'd be comfortable

21 saying that here, "common" also means "widely adopted."

22 BY MR. HOLMES:

23   Q.   And what about "well known," what does that

24 mean in the context here?

14:15 25   A.   "Well known" certainly doesn't mean to everyone

14:15

14:16

14:16

14:16

14:16

1   in the world. Constrained to people who are in this

2   community, these are well known features.

3   Q.   And "widely adopted," we've discussed that. Do

4   you import the same definition of "widely adopted" that

5   we previously discussed to your use of that term in

6   paragraph 171?

7   A.   Yes, I do.

8   Q.   Again, are you able to provide any numbers that

9   would allow someone to determine whether or not

10   something was common, well known, or widely adopted?

11   MR. WONG: Objection, vague, incomplete

12   hypothetical.

13   A.   I would say I don't have a bright-line

14   threshold for when something becomes common, well known,

15   or widely adopted.

16   BY MR. HOLMES:

17   Q.   Now, why use all three, "common, well known,

18   and widely adopted"?

19   A.   If you're implying there's some overlap in the

20   meanings, I agree.

21   Q.   I'm not implying anything.

22   A.   Okay.

23   Q.   The way you've described it, and I don't mean

24   to be characterizing your testimony, but the way I

25   understand it is that the way you've been defining these

14:17   1 terms today is that they're all generally -- they

         2 generally mean the same thing.

         3   So my question is just why are you using all

         4 three terms, and is there a distinction between them in

14:17   5 any way?

         6   MR. WONG: Objection, compound.

         7   A.   So I mean I think that "well known" is distinct

         8 from "widely adopted." We can go through some examples

         9 of that if you disagree or if you'd like me to try to

14:17   10 elaborate. Lots of things are well known but not widely

        11 adopted.

        12   "Common" I think has definite overlap with

        13 "widely adopted" at least in the sense I'm using common.

        14 I think a minute ago I even defined common as being

14:17   15 widely adopted. So I think there's some overlap.

        16 Certainly when I'm trying to say something with

        17 conviction, I might say -- use words that have some

        18 overlapping meaning. But I wasn't intending to say that

        19 these three are all distinct concepts.

14:18   20   Q.   In the second sentence in paragraph 171 you

        21 say, four lines down:

        22   "Supported across multiple vendors,

        23   networking devices." Do you see that?

        24   A.   I just found it, "supported across multiple

14:18   25 vendors networking devices," I see it.

1   Q.   If I asked you to put a percentage on what it

2   would take to meet this multiple vendors definition,

3   could you give me a percentage?

4   A.   No, there's no threshold that I could give you

14:18   5   that would meet that requirement.

6   Q.   If you go to the next line down, same

7   paragraph, you say:

8   "With which end users, i.e., customers

9   who purchase and use such devices, have

14:19   10   become and are familiar," do you see that?

11   A.   I see that.

12   Q.   What is your meaning of the term "familiar" in

13   this context?

14   A.   I mean "familiar" in the sense that when an

14:19   15   end user is interacting with one of these CLIs, he or

16   she would see the behaviors, responses, reactions that

17   he or she is used to and accustomed to from having had

18   experience with similar CLIs in the past.

19   Q.   Now, we've been talking about paragraph 171,

14:19   20   right?

21   A.   We have, yes.

22   Q.   And you've provided here what amounts to a

23   definition of the industry standard CLI, correct?

24   MR. WONG: Objection, vague.

14:20   25   A.   I would say that yes, I offer something that

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 1   you could call a definition of what that term means,

 2   yes.

 3   BY MR. HOLMES:

 4       Q.   Okay.  Now when was the industry standard, as

 5   you've defined it here, first created?

 6           MR. WONG:  Objection, vague.

 7       A.   If you're asking was there a moment in time

 8   when this suddenly emerged, I don't think there is such

 9   a time.  I think it evolved from the very first CLIs in

10   the 1960s through the technology that I talk about, such

11   as RSX and VMSDCL, TOPS-20 and Unix, then SUMEX, EECF,

12   which Kirk Lougheed was involved in, the first Cisco

13   products, then saw the vendors I talk about emerging

14   over time with similar CLIs.  It was a gradual

15   evolutionary process.

16       Q.   So you can't give me a year, for instance,

17   when, in your opinion, the industry standard CLI, as

18   you've defined it here, became a de facto standard?

19           MR. WONG:  Objection, vague.

20       A.   I can't.  It's a percentage of numbers of

21   vendors, things like that.  There's no specific

22   threshold that I have in mind.

23   BY MR. HOLMES:

24       Q.   Did you, when preparing your reports, try to

25   investigate when the industry standard CLI may have --
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14:22

1   strike that.

2   Did you, when preparing your reports, do

3   anything to investigate when the industry standard CLI

4   as you've defined here became a de facto standard?

14:22   5   A.   I mean I certainly considered, when writing my

6   reports, what the state of the community was in the 80s,

7   90s, 2000s, and thought how common was it to see a CLI

8   that was compatible with TOPS-20 Unix Cisco. Of course

9   that's affected by the timing of the entrance into the

14:22 10   market and so forth. But I didn't think back and say

11   oh, I remember in 2003 when suddenly this industry

12   standard emerged at that moment in time. But I did

13   consider past state of the level of adoption through my

14   experiences from the 80s onward.

14:23 15   Q.   And can you tell me how many commands are a

16   part of the industry standard CLI as you've defined it

17   here in paragraph 171?

18   MR. WONG: Objection, vague.

19   A.   I mean I have a similar answer to the other

14:23 20   questions about commonality and emergence of a standard.

21   I don't have a specific threshold that says only these

22   commands but not those.

23   BY MR. HOLMES:

24   Q.   Can you tell me how many hierarchies are

14:23 25   included in the industry standard CLIs you've defined in

176

1   paragraph 171?

2   MR. WONG: Objection, vague.

3   A.   First of all, I want to know what a hierarchy

4   is, and I take it in Cisco's pleadings and

14:23   5   Dr. Almeroth's reports that it seems to be this concept

6   of grouping together commands or command abstractions

7   that share a common first word. Professor Almeroth has

8   identified now 11 of these in his latest report. And

9   so, assuming that that definition is acceptable for my

14:24 10   answer, I think that hierarchies as a concept have

11   existed since CLIs have existed. I'm not even sure what

12   the question means specific to industry standard NOS

13   CLIs, which I believe is your question. So I don't know

14   what that means.

14:24 15   BY MR. HOLMES:

16   Q.   Okay, well, you've defined an industry standard

17   CLI in paragraph 171, and as part of that definition

18   you've included the term "command hierarchies," so you

19   certainly have an understanding what command hierarchies

14:24 20   is, correct?

21   A.   Take a moment to read that, please?

22   MR. HOLMES: Absolutely.

23   (Perusing documents.)

24   THE WITNESS: Okay, I read it.

14:25 25   A.   So once again, I'm taking "hierarchies" to just

1   mean the conceptual but not literal grouping together of

2   CLI commands under a common first word. It's almost

3   empty to include it in this list, even though I did,

4   because it's among accused elements, because I don't

14:25   5   know how you have a group of commands and then you have

6   to sort of excise from your mind the idea that they

7   could be thought of as grouped under a common first

8   word. But I'm certainly willing to consider that as a

9   concept that is present in other CLIs that also have

14:25   10   similar commands.

11   BY MR. HOLMES:

12   Q.   Well, you've included it in your definition of

13   an industry standard CLI, right?

14   A.   I have, and I wouldn't have except that Cisco

14:25   15   has it enumerated in the elements that are accused.

16   Q.   But you didn't -- there was no requirement that

17   you include it in your definition, right?

18   MR. WONG: Objection, argumentative.

19   A.   No, I'm trying to -- there are many things in

14:26   20   my report that if I were doing this as a standalone

21   investigation about commonality of things, features,

22   elements and CLIs, that I would have done differently.

23   I certainly wouldn't have chosen the 508 accused command

24   abstractions that Cisco has chosen. But I'm trying to

14:26   25   respect the position that Cisco's taken in its

1   allegations and trying to use, in some cases, its

2   definitions, and certainly I'm paying attention to the

3   accused elements and trying to speak the same language

4   so that I can render an opinion that makes sense to

14:26   5   Cisco.

6   BY MR. HOLMES:

7   Q.   Understood. You do say, though, Dr. Black,

8   that in the last sentence in paragraph 171:

9   "These common features and functionality

14:26   10   include CLI commands, command hierarchies,

11   command modes, command prompts, command

12   responses, and cover accused aspects of the

13   Arista EOS CLI accused by Cisco in this

14   litigation," right?

14:27   15   A.   That's right. And once again, if I were in a

16   vacuum, defining what the common features and

17   functionalities of a CLI are, I would not have included

18   this. But as you just noted at the end of the sentence,

19   I'm doing this in a context that attempts to cover the

14:27   20   accused aspects, and one of the accused aspects is

21   command hierarchies. So I'm including that in the list

22   of common features.

23   MR. WONG: Counsel, we've been going an hour

24   and a half, take a short break?

14:27   25   MR. HOLMES: Sure.

1   THE VIDEOGRAPHER: This marks the end of DVD 3

2   to the deposition of John Black. The time is 2:26 p.m.

3   Counsel, we're going off the record.

4   (Recess taken.)

5   THE VIDEOGRAPHER: Counsel, this marks the

6   beginning of DVD 4 to the deposition of John Black. The

7   time is 2:44 p.m. We're now on the record.

8   BY MR. HOLMES:

9   Q.   Dr. Black, before the break, we were talking

10   about paragraph 171 of your Opening Report. And my

11   question to you is, how many command hierarchies make up

12   the industry standard CLI as you've defined that term in

13   paragraph 171?

14   MR. WONG: Objection, vague.

15   A.   Once again, the way I interpret hierarchies to

16   be implicit in the commands, I'm following what I

17   believe is Cisco's concept of what that term means.

18   It's therefore going to be directly related to the

19   commands themselves. If somebody says well, these

20   commands are part of the industry standard, you'll get

21   another hierarchy because they'll have a common first

22   word. So it's really dependent on the number of

23   commands that you would consider to be part of the

24   industry standard.

25   ///

1   of formulating your opinions for this case?

2   A.   Many times.

3   Q.   And was the command response that you got using

4   a Cisco device similar to the command response that you

14:52   5   got when you used the Arista device?

6   MR. WONG: Objection, vague.

7   A.   Yes, and similar to what I got when I used a

8   Dell device, when I used a Juniper device, Junos E

9   device, and so forth, yes.

14:52   10   BY MR. HOLMES:

11   Q.   When you used the Dell device, did you use that

12   in the context of formulating your opinions in this

13   case?

14   MR. WONG: Objection, vague.

14:53   15   A.   Only in the sense that I know that's what it

16   does from prior use, but I didn't make a trip to campus

17   while drafting my report to verify that memory.

18   BY MR. HOLMES:

19   Q.   Same question with respect to Junos E. During

14:53   20   the process of preparing this report, did you interact

21   with the Junos E device to verify that the command

22   response that it outputs is the same as the command

23   response that was outputted by Cisco and Arista?

24   MR. WONG: Objection, vague.

14:53   25   A.   I relied on my memory of that interaction. I

1   didn't go and verify it while drafting my report.

2   BY MR. HOLMES:

3   Q.   Just to be clear, I just want to make sure I

4   have an understanding of what you relied on in preparing

14:53   5   your report. I don't recall in your reports that you

6   disclosed that you relied on the use of a Dell device or

7   a Junos E device in formulating your opinions in this

8   case; do you know if you did or didn't disclose that?

9   A.   I believe I relied on all my experience,

14:54   10   training, and research and consulting work throughout my

11   career, not every minute of it of course is relevant to

12   this, but certainly the times I've written CLIs,

13   parsers, the times I've looked at any source code, the

14   times that I've interacted with these devices I just

14:54   15   described helped inform my opinions. Even if I don't

16   explicitly enumerate every experience in my career, I

17   oftentimes rely on those experiences as part of what

18   makes up my qualifications.

19   BY MR. HOLMES:

14:55   20   Q.   How many CLI commands would a vendor need to

21   adopt in order to be compliant with the industry

22   standard CLI?

23   MR. WONG: Objection, incomplete hypothetical.

24   A.   Once again, there is no specific threshold that

14:55   25   I have in mind that says if you're below this number

1   you're not, and if you're above this number you are. I

2   think that that number isn't even relevant because we

3   have such overwhelming evidence that there are hundreds

4   of commands, command abstractions, adopted by a large

14:55   5   number of vendors, as I've painstakingly laid out in my

6   appendices that would fall under anyone's definition of

7   what "widespread adoption" means.

8   BY MR. HOLMES:

9   Q.   How many -- strike that.

14:55 10   How many hierarchies would a vendor need to

11   adopt in order to be compliant with the industry

12   standard CLI?

13   MR. WONG: Same objections.

14   A.   As I stated before, hierarchies are directly

14:56 15   related to the commands in my view, and therefore my

16   answer is the same, that it would depend on the number

17   of commands, and the number of commands I don't have a

18   specific threshold for, but the evidence is clear here

19   that there's widespread adoption and we don't need a

14:56 20   specific number.

21   BY MR. HOLMES:

22   Q.   And how many command modes would a vendor need

23   to adopt in order to be compliant with the industry

24   standard CLI?

14:56 25   A.   I would say there, to pass muster by most

1   people's expectations, you'd need at least those four

2   that we talked about, perhaps more, but at least those

3   four would be expected.

4   Q.   How many command prompts would -- strike that.

14:56   5   How many command prompts would a vendor need to

6   adopt in order to be compliant with the industry

7   standard CLI?

8   A.   Once again I view prompts as being married to

9   modes, so I would say the same thing, at least four.

14:57 10   Those are the same four I've talked about.

11   Q.   And how many command responses would need to be

12   adopted by a vendor in order to be compliant with the

13   industry standard CLI?

14   MR. WONG: Same objection, incomplete

14:57 15   hypothetical.

16   A.   Once again, I don't have a particular number in

17   mind.   I would think that there's an expectation that

18   responses will look a certain way, and in my

19   investigation they do, across all -- numerous vendors.

14:57 20   Therefore, I think that we don't need a precise number.

21   BY MR. HOLMES:

22   Q.   So in the last sentence of paragraph 171 you

23   say:

24   "These common features and

14:57 25   functionalities include CLI commands,

                  command hierarchies, command modes,

   1

   2   command prompts, and command responses."

   3   Do you remember that?

   4   A.   I see it in fact.

14:57   5   Q.   And you also say:

   6   "And cover the accused aspects of the

   7   Arista EOS CLI accused by Cisco in this

   8   litigation," right?

   9   A.   A little redundant. I say accused twice.

14:58   10   Q.   Are there any features and functionalities that

   11   you excluded from this list that, in your opinion,

   12   should be included in the definition of industry

   13   standard CLI?

   14   A.   Yes, there are some other features. I would

14:58   15   include, among what's expected, the features expected by

   16   most users.

   17   Q.   Can you please identify those features.

   18   A.   I probably can't give you a complete list but I

   19   can give you a number of examples.

14:58   20   So when I sit down at a CLI for a networking

   21   device, I expect, if it's industry standard, I expect

   22   that when I hit some keys on the keyboard that those

   23   keys will be echoed back to me. And you probably know

   24   that's not necessarily a technical requirement. There

14:58   25   are times when you type and you don't see the keys

14:59

14:59

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14:59

15:00

1 echoed back, like when you're typing a password. So

2 that behavior I expect, and that's from the beginning of

3 time really.

4   When I hit backspace, I expect the last

5 character to be erased. When I hit the left arrow, I

6 expect the cursor to move, without erasing, left on my

7 screen through the characters that are already typed.

8 Obviously right arrow should do the reverse, move the

9 cursor to the right. I should be able to hit up arrow

10 and review previously-issued commands in case I want to

11 re-issue them with some edits. When I hit down arrow, I

12 should go back down through the command history.

13   When I hit question mark, I should get a list

14 of available options to type wherever I am, even if I'm

15 in the middle of a command or in the middle of a command

16 word. Optional ways to complete the word I'm in the

17 middle of should be given in a context-sensitive manner.

18   If I'm in the middle of a word or middle of a

19 command and I hit tab, it should auto-complete that word

20 for me provided the prefix I've typed in is unambiguous.

21 If I choose not to hit tab, the prefix I've typed in, if

22 it's unambiguous, should be taken to mean the full word

23 that completes it.

24   These kinds of behaviors are standard across

25 all these industry standard CLIs, they all existed in

1   CLIs prior to Cisco's founding, and I would group those

2   in with these other features that I've identified.

3   Q.   But you do not list them in paragraph 171,

4   correct?

15:00   5   A.   No.   Here, I was focused simply on the accused

6   aspects of CLI that Cisco had identified.

7   Q.   I'm not sure I understand your answer.

8   A.   They're not there.

9   Q.   You do not list those additional features in

15:00   10   paragraph 171, correct?

11   A.   In 171, I restrict to the accused elements.

12   I do talk about those features elsewhere in the report

13   though.

14   Q.   You haven't included in your list in paragraph

15:01   15   171 user manuals, correct?

16   A.   No, I have not included manuals.

17   Q.   Did you include any documents in your list of

18   common features and functionalities in paragraph 171?

19   MR. WONG: Objection, vague.

15:01   20   A.   No.   In fact I wouldn't consider manuals or

21   technical documents to be part of the CLI.

22   BY MR. HOLMES:

23   Q.   And you also didn't list help descriptions in

24   paragraph 171, correct?

15:01   25   A.   I did not and I certainly would have, had those

1   allegations come in a timely manner. I think it's

2   relevant to include those in the list of items

3   considered; just no way I had time.

4   Q.   I think you testified earlier you were made

15:01   5   aware of the help description allegations at least by

6   May 27th; is that fair?

7   A.   I think either the 27th or to the 28th, which

8   would have been a Saturday.

9   Q.   And this Opening Report was submitted on

15:02   10   June 3rd, correct?

11   A.   Yes, it was.

12   Q.   Now, do you consider Cisco's NX-OS CLI to be

13   compliant with your definition of the industry standard

14   CLI?

15:02   15   MR. WONG: Objection, vague.

16   A.   For the most part, it has some differences from

17   what I expect, but I think it still conforms to the

18   industry standards. I think I could get through it

19   without a manual, figure things out. For the most part,

15:02   20   the prompts, the commands, the hierarchies, the modes

21   are what I would expect.

22   BY MR. HOLMES:

23   Q.   So in your -- strike that.

24   So in your opinion, is Cisco's NX-OS CLI an

15:02   25   industry standard CLI?

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        1              MR. WONG:  Objection, vague.

        2      A.    It is, even though it's not perfectly

        3   conforming, I would consider it to be industry standard.

        4   BY MR. HOLMES:

15:03   5      Q.    Is Cisco's XR CLI an industry standard CLI in

        6   your opinion?

        7              MR. WONG:  Same objections.

        8      A.    With the proviso there are some differences.

        9   Overall, I would say it is.

15:03  10   BY MR. HOLMES:

       11      Q.    And is Cisco's IOS XE CLI an industry standard

       12   CLI in your opinion?

       13              MR. WONG:  Same objections.

       14      A.    With the same provisos, yes, I believe it is.

15:03  15   BY MR. HOLMES:

       16      Q.    Now, paragraph 172, paragraph 172 reads:

       17              "Both the Cisco IOS CLI and the Arista

       18              EOS CLI support the industry standard CLI

       19              as well as numerous other networking

15:04  20              vendors discussed in this and other

       21              sections of my report."  Do you see that?

       22      A.    I do.

       23      Q.    And that's your opinion?

       24      A.    Yes, it is.

15:04  25      Q.    Now, when you say:
```

1   the Arista EOS CLI support the industry standard CLI, is

2   it your opinion that Cisco's IOS CLI and Arista's EOS

3   CLI are similar?

4   MR. WONG: Objection, vague.

15:05 5   A.   In the elements that I've enumerated, and some

6   of the ones we talked about that aren't in the list in

7   171, they are similar just like the 18 other vendors are

8   similar.

9   BY MR. HOLMES:

15:06 10   Q.   Will you take a look at paragraph 180 please of

11   your Opening Report.

12   A.   I'm there.

13   Q.   Sorry, 178.

14   A.   78? I'm there.

15:07 15   Q.   Okay. In paragraph 178 you say:

16   "As shown in this section of my report,

17   it is my opinion the accused command modes

18   and prompts listed in Exhibit C to Cisco's

19   interrogatory responses are supported by

15:07 20   the vast majority of networking equipment

21   vendors I examined for this report, and

22   that the disputed command modes and prompts

23   are part of the industry standards CLI that

24   users of networking equipment expect."

15:07 25   Do you see that?

1   A.   I see that.

2   Q.   And that's your opinion?

3   A.   It is.

4   Q.   What is a "command mode"?

15:07   5   A.   A command mode is the state of the parser. So

6   that when you're in one mode, the prompt is different

7   from other modes, and the set of available commands that

8   you have available to type in as valid commands within

9   that mode is often different from in other modes. But

15:08   10   the technical answer is, it's a state of the parser.

11   Q.   And when you say "vast majority" in paragraph

12   178, what do you mean?

13   A.   I think that's qualified by vast majority of

14   vendors I examined. And so I mean that almost all of

15:08   15   the vendors I examined qualify under my statement here.

16   Q.   Now, in performing your analysis in preparing

17   these reports, did you analyze every networking

18   equipment vendor in the industry?

19   MR. WONG: Objection, vague.

15:09   20   A.   I certainly included every vendor I could think

21   of. I learned some more of them along the way as I read

22   some of the evidence and documents. I know that it's

23   Professor Almeroth's contention that I missed more than

24   20. He cites to Wikipedia in his deposition transcript.

15:09   25   So there are definitely some that I didn't think of or

1   didn't consider in my analysis. I went to Wikipedia

2   last night just to find out, and the first one I saw was

3   Aerohive, A-E-R-O-H-I-V-E. The manuals were in Korean.

4   They apparently sell a switch. I didn't include that in

15:10   5   my analysis, and I probably wouldn't have even if I

6   stumbled across them.

7   I found other vendors like TPLink, which I only

8   knew for their sales of wireless unmanaged switches, but

9   apparently they do have a managed switch. It has a GUI,

15:10   10   it doesn't have a CLI, so I would not have included it

11   in my analysis of other vendors of CLIs. So I certainly

12   am aware of vendors that I did not include, and I would

13   never claim that I got everybody.

14   Q.   And so can you walk me through your methodology

15:10   15   for how you determined which vendors to select?

16   A.   Sure. So I wanted to get all of the major

17   players for sure. And that was easy for me because I've

18   been around and I kind of know who they are. So those

19   immediately went on the list.

15:10   20   There are some that, in my perception, aren't

21   big players, or I didn't think of because they're small

22   fries in the market. And sometimes Arista's lawyers

23   would say here are some more to consider, and they would

24   give me the manuals produced by those vendors. I could

15:11   25   throw them into the pool.

1   I learned about Procket which I've never heard

2   about before because of Tony Lee's deposition testimony.

3   I heard of Tail-F, although I shouldn't include them

4   because they're not in the list of vendors.

15:11   5   There was another one, now I'm losing who it

6   was -- there was another small player that was mentioned

7   in the course of my reading one of the depo transcripts

8   and I went oh, there's another one I added to the list

9   because I thought it was relevant -- oh, I'm sorry,

15:11   10   NextTop was the one I was trying to remember. I'd never

11   heard of them before. And so as a few of these actors

12   came into my mind and then into my report as a result of

13   their being mentioned along the way.

14   Q.   Did you do anything else to try to locate

15:12   15   vendors who you felt might be worth investigating when

16   formulating your opinions about which vendors comply

17   with or don't comply with the industry standard CLI as

18   you've defined that term?

19   A.   I mean I did, as a spot-check, do a shopping

15:12   20   query for network switches to make sure there wasn't

21   something obvious that I've been missing. Didn't find

22   anything that way. I did not look at Wikipedia, I

23   didn't think to until Tuesday. So I did try to

24   double-check to some extent to make sure I hadn't missed

15:12   25   anyone that was major.

1   blurred and that they have routing functionality.

2   BY MR. HOLMES:

3   Q.   But you're aware that Cisco sells routers,

4   correct?

15:14   5   A.   I have one in my living room.

6   Q.   And so taking a step back, did you consider any

7   vendors who offer routers when you were performing your

8   analysis of what vendors do and do not potentially use

9   the industry standard CLI, in your opinion?

15:14   10   A.   I mean I think -- I couldn't name them off the

11   top of my head, but I think most of these vendors offer

12   routers.

13   Q.   Did you do anything to verify that?

14   MR. WONG: Objection, vague.

15:14   15   A.   I mean it wasn't a specific question I thought

16   was important at all. I didn't try to verify that.

17   It's my awareness that many of these vendors sell

18   routers.

19   BY MR. HOLMES:

15:15   20   Q.   Is there anything else that went into your

21   methodology of how you selected the vendors that you

22   analyzed that you haven't already explained to me?

23   MR. WONG: Objection, vague.

24   A.   I mean beyond probing my memory, talking to the

15:15   25   attorneys, doing some Web searching, I think that is how

1   I built out my list, and I'm still not aware, sitting

2   here today, of any major player that I missed.

3   BY MR. HOLMES:

4   Q.   Did you include Huawei?

15:16   5   A.   Only in the sense that they are discussed a few

6   times in my reports, but I don't think they're one of

7   the 20.

8   Q.   Would you consider Huawei to be a major player?

9   MR. WONG: Objection, foundation.

15:16   10   A.   I think they could be considered to be major.

11   I've never seen one of their routers or switches but

12   I've searchable heard of them. They were made famous to

13   me in 2003 when they got sued, and they're also a famous

14   company for telecom.

15:16   15   BY MR. HOLMES:

16   Q.   And you haven't performed an analysis of their

17   CLI in support of your expert reports in this case,

18   correct?

19   MR. WONG: Objection, vague.

15:16   20   A.   I mean I analyzed them in the sense that I

21   discussed their CLI, I discussed the differences, the

22   fact that they use displays of "show undo" instead of

23   "no," and the list goes on, right? There are those

24   distinctions. Same with 3Com, I also discussed that

15:17   25   they're similar distinctions for almost the same reason.

1   So in that sense I think I could say I do some analysis.

2   BY MR. HOLMES:

3   Q.   But you haven't included them in your

4   appendices where you analyze which vendors you believe

15:17   5   comply with the industry standard CLI, correct?

6   A.   That's correct. If I include Huawei because of

7   the reasons I just noted, that they deliberately swap

8   out "show" or "display" and so forth, they're not going

9   to have show commands that I enumerate in my appendices.

15:17   10   BY MR. HOLMES:

11   Q.   And so in your opinion, does Huawei use the

12   industry standard CLI?

13   A.   So my opinion is they used to. I mean they did

14   something horrible and they copied source code, right.

15:17   15   And so they used to. And then they were more or less

16   forced to change to a CLI that I would say is not

17   industry compliant because they failed to use any of the

18   common commands. Now, via trick, I think they overtly

19   just say all you have to do is alias these words back to

15:18   20   their Cisco or industry standard or EOS equivalence, and

21   you essentially recover an industry standard CLI which

22   is just an old work-around.

23   Q.   Are you familiar with Juniper's Junos CLI?

24   A.   I've used it.

15:18   25   Q.   In your opinion, is Juniper's Junos CLI

1   compliant with the industry standard CLI as you've

2   defined it in this case?

3   A.   So when you say the "industry standard," I'm

4   going to assume the one that we've been talking about

15:18   5   all day.

6   Q.   Well, what I said was "the industry standard

7   CLI as you've defined it in this case."

8   A.   I was trying to expand on what my answer was

9   going to be there.

15:19   10   When I say "the industry standard," I'm talking

11   about the IOS-like industry standard. Some people talk

12   about Junos as being an alternative industry standard.

13   Now, I think that is up for grabs. I mean you could

14   argue one way or the other whether that is an

15:19   15   independent industry standard. I think Cisco believes

16   it is because it offers it. It's in one of its

17   products. But it certainly does not conform to the

18   industry standard we've been talking about.

19   Q.   So it's potentially a different industry

15:19   20   standard CLI?

21   A.   Potentially, yes.

22   Q.   And have you done anything to investigate

23   whether or not Junos CLI would meet your own definition

24   of a de facto standard?

15:19   25   A.   As an independent de facto standard, I didn't

1   spend any time on that question at all.

2   Q.   So let's turn to paragraph 180 please.

3   A.   I'm sorry, already there. Okay, I'm there.

4   Q.   So in paragraph 180 you say:

15:20   5   "It is also my opinion that many

6   third-party networking vendors that sell

7   switches and routers, or who sold switches

8   and routers before being acquired or

9   ceasing operation, supported and still

15:20 10   support hundreds of the same disputed CLI

11   commands at issue in this case. Based on

12   my analysis of user documentation from many

13   third-party networking equipment vendors,"

14   and you provide a summary of your findings. Do you see

15:21 15   that?

16   A.   I see that.

17   Q.   These are your opinions; is that right?

18   MR. WONG: Objection, vague.

19   A.   These are my opinions. These are my findings.

15:21 20   BY MR. HOLMES:

21   Q.   So as we just discussed, you were at

22   Dr. Almeroth's deposition, right?

23   A.   Yes, I was.

24   Q.   And you heard Dr. Almeroth discuss his opinion

15:21 25   that he believes you may have omitted up to not more

15:22   1   than 20 networking vendors from your analysis?

2   A.   I'm not sure if he said that at deposition. He

3   certainly says it in his reports.

4   Q.   Fair enough. Do you recall him at least saying

15:22   5   that in one of his expert reports?

6   A.   Yes, I do.

7   Q.   If it's true that your analysis was based on

8   analyzing only one-half of the market, would that change

9   your opinions in any way?

15:22 10   MR. WONG: Objection, vague.

11   A.   I mean if you were to point out that I missed

12   20 other vendors that comprise 80 percent market share

13   in this space, embarrassed would not reach the level of

14   what I would feel. I don't think that's remotely

15:22 15   probable. If you point out that there are some players

16   who only sell their equipment in Korea that I didn't

17   consider, I wouldn't be surprised at all. I never said

18   in my reports "and there are no other vendors." All I

19   said was that this is "widespread, widely adopted, and

15:22 20   common," and I certainly tried to include all the major

21   players that I knew about and used the criteria I

22   already described in building my list.

23   MR. HOLMES: I do appreciate your answer,

24   although I asked a little bit different question.

15:23 25   THE WITNESS: I'm sorry.

         1   MR. HOLMES: It's okay, I'll re-ask it.

         2   BY MR. HOLMES:

         3   Q.   If it's true that your analysis was based on

         4   analyzing only one-half of the market, would that change

15:23   5   your opinions in any way?

         6   MR. WONG: Objection, vague.

         7   A.   If that's all -- if that's all you're telling

         8   me, and if you're saying "half the market" just means by

         9   putting Aerohive and Juniper side by side, then that

15:23   10   could be the case. But I don't think it's a fair thing

        11   to do to say Aerohive and Juniper should be put on the

        12   same footing. So if you're saying half, simply by

        13   counting companies, then I don't think it's relevant and

        14   it wouldn't change my analysis at all, or my opinions.

15:23   15   BY MR. HOLMES:

        16   Q.   As part of your definition of the industry

        17   standard CLI, do you anywhere reference market share as

        18   being a factor that you considered?

        19   A.   When you say "reference," you mean do you mean

15:24   20   is it written in my report or was it on my mind at the

        21   time?

        22   Q.   Was it written in paragraph 171 of your report?

        23   A.   171.

        24   MR. WONG: Object the question as vague.

15:24   25   A.   In paragraph 171 I say: "It refers to common

1   well-known widely-adopted features and functionalities

2   of CLIs." I don't say market share. My intent was to

3   only include large players. And when I say common and

4   well-known and widely-adopted, I'm not thinking of --

5   I'm not stating anywhere that market share is one of the

6   relevant attributes that I need to have.

7   Now, that said, if you wanted to push back, or

8   somebody wanted to challenge my opinion and say look,

9   you've cited 18 other vendors, and these 18 other

10   vendors are basically defunct companies, and they only

11   operate in Antarctica, and they only have three

12   customers each, and the vast majority of these other

13   players that you've ignored comprise 80 percent of the

14   market, I would think that's a significant challenge to

15   my opinions. But the fact is, the story runs in

16   reverse, that I considered all the major players in my

17   analysis. And even though I don't list it explicitly as

18   one of the criteria that I used, I think it's an

19   important criterion.

20   BY MR. HOLMES:

21   Q.   You would agree with me though that Juniper is

22   a major player, right?

23   MR. WONG: Objection, vague.

24   A.   The company, yes, absolutely.

25   ///

BY MR. HOLMES:

Q.   And in your Appendix where you analyzed various vendors' adoption of command abstractions, as you put it, you didn't analyze Junos in those tables, did you?

15:26   A.   I actually did, and there's an Appendix called "H.JU" I think, or something like that.

Q.   For Junos, not Junos E?

A.   No, I mean Junos E when I say Junos in that context.

15:26   Q.   So you're talking about Junos E, not Junos?

A.   Yes, sir.

Q.   Okay, so did you analyze Junos?

A.   You mean series M that's distinct from series E that has this other flavor of CLI?

15:26   Q.   That's correct.

A.   I did not include that series of products from Juniper in my analysis in the appendices.

Q.   And you're aware that Junos E is a defunct product, right?

15:26   MR. WONG: Objection, vague.

A.   I'm not aware of that. But if you represent that to me, I could imagine it.

BY MR. HOLMES:

Q.   Did you check, prior to submitting your

15:26   reports, to see whether or not all of the vendors that

1   you analyzed were still offering the products that you

2   looked at?

3   A.   I know for a fact that some of them are gone.

4   Procket has been absorbed into Cisco. NextTop was

15:27 5   acquired by Arista. Some of these companies don't exist

6   any more or have been acquired or merged.

7   Q.   So you did consider vendor CLIs that are no

8   longer on the market, correct?

9   A.   Yeah, I wasn't trying to give a snapshot of the

15:27 10   world as it stands in 2016. I was trying to show

11   widespread adoption by numerous vendors over the last 30

12   or so years of this industry standard CLI.

13   Q.   Going back to the question that I think started

14   us off on this train, which is, if it's true that your

15:28 15   analysis was based on analyzing only one-half of the

16   market, would that change your opinions in any way?

17   MR. WONG: I think it was asked and answered.

18   A.   When you say "one-half of the market," I take

19   into account market share in that question.

15:28 20   BY MR. HOLMES:

21   Q.   Okay, let me clarify my question then.

22   If it's true that your analysis was based on

23   analyzing only one-half of the vendors who offer

24   switching products in the market, would that change your

15:28 25   opinions in any way?

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 1        A.    No --

 2              MR. WONG:  Objection --

 3        A.    -- not if there were 40 minor players that

 4  comprise less than one percent of the market, it

 5  wouldn't change my opinions at all.

 6  BY MR. HOLMES:

 7        Q.    And would your answer be the same if you had

 8  only analyzed one quarter of the vendors who offer

 9  switching products in the market?

10              MR. WONG:  Same objection, incomplete

11  hypothetical.

12        A.    If that one quarter were 20 other companies and

13  those comprised a sum total of 80 percent of the

14  non Cisco market, I would still stand by my opinions.

15  BY MR. HOLMES:

16        Q.    What about if that number you analyzed was only

17  five percent of the market, would your opinions be the

18  same?

19              MR. WONG:  Same objections.

20        A.    As long as whatever percentage of the market by

21  vendor count, not by market share, was 18 companies that

22  comprise the vast majority of non Cisco market share, I

23  wouldn't care if there were a thousand other vendors

24  that had one customer each, it wouldn't matter.

25  ///
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1   BY MR. HOLMES:

2   Q.   How do you factor in market share when you've

3   just testified that a number of the vendor CLIs you

4   analyzed are no longer even on the market?

15:30   5   A.   Well, as I stated before, the way that I made

6   up my list, the first cut was based on market share.   I

7   thought of Juniper, Brocade, Arista, other major

8   players.   Then that list was supplemented because I

9   learned about relevant actors, often who are now

15:30   10   defunct, from deposition testimony and other evidence in

11   the case that I threw into the mix, but I wasn't trying

12   to say NextTop and Juniper are somehow at the same level

13   of importance in the market.   That would be ridiculous.

14   Q.   And were there any -- when you were performing

15:30   15   your analysis, were there any vendors that you

16   intentionally excluded?

17   A.   Junos, not E, was purposely not listed.

18   Huawei, which I'm clearly aware of, 3Com which I'm

19   clearly aware of because they're talked about, they

15:31   20   aren't on the list because I know that they have a

21   virtually zero command overlap because they deliberately

22   rename their commands.   So in the cases where there were

23   significant players, where it would be a waste of time

24   to do the analysis, I didn't do the analysis.

15:31   25   Q.   Can you think of any other vendors as you sit

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1   here right now that you thought would be a waste of time

2   to do the analysis on?

3   A.   Certainly vendors that don't have a CLI,

4   Linksys which is now part of Cisco, DLink -- no, I'm

15:31   5   sorry, I do DLink for their switches, not their wireless

6   routers, anything that's a networking switch or router

7   that doesn't have a CLI also I omitted.

8   Q.   Do you know how many companies fall under that

9   category?

15:31   10   A.   Under which category?

11   Q.   The category of vendors who offer networking

12   switches or routers who do not have a CLI?

13   A.   I can think of maybe five off the top of my

14   head. There are a lot of small players in that market.

15:32   15   It's kind of a commodity Wal-Mart type market, so a lot

16   of Chinese players. I couldn't tell you an exact

17   number, but there are a number of them.

18   Q.   What are the five that you can think of?

19   A.   Buffalo, Linksys, although I guess I should

15:32   20   exclude it because it's part of Cisco now, TPlink, I

21   guess I can only think of those; I don't know how

22   many -- was that three? I guess I can only think of

23   three right now -- oh, and Aerohive, right. I think

24   they were on the list as well.

15:33   25   ///

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 1    BY MR. HOLMES:

 2        Q.   What type of CLI did they have?

 3        A.   I think they had -- well, it was in Korean, but

 4    from the pictures, I think it was -- they were showing a

 5    GUI with -- so I got the impression they don't have a

 6    CLI, but I could be wrong.  I don't speak Korean.

 7    BY MR. HOLMES:

 8        Q.   I believe you testified earlier that you, over

 9    the past 48, 72 hours, went and looked up on Wikipedia a

10    list of routing and switching vendors, is that right?

11        A.   Yes.

12        Q.   Did you go investigate the vendors on that list

13    that you had not included in your report, other than the

14    names of the vendors you've already mentioned to me?

15        A.   The vast majority are in my report.  I did --

16    some of them were in red in Wikipedia, which means

17    there's no link, so I couldn't click on it, although I

18    could still do a Google search, but they were so obscure

19    that nothing came up.  But I did not do a disciplined

20    careful principled analysis of each of them.  I didn't

21    have that much time, as you might imagine.  I did

22    spot-check a couple, spot-check a couple of them as I

23    mentioned, but I wouldn't claim to have looked at

24    everything.

25        Q.   I want to turn back to paragraph 180, please.
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The timestamps in the left margin: 15:33 (line 5), 15:33 (line 10), 15:33 (line 15), 15:34 (line 20), 15:34 (line 25)

1   which stands for Internet Engineering Task Force, one of

2   the major standards bodies that develops and publishes

3   RFCs and standards that pretty much rule how the

4   Internet works.

16:28   5   And then within Appendix A under each of these

6   headings regarding all these various protocols, I give

7   disputed commands in a table, the earliest document date

8   for that disputed command, and often I mean command

9   abstraction, and then note which RFC the relevant

16:28   10   protocol that's related to that disputed command

11   abstraction appears.

12   Q.   And what was the purpose of Appendix A?

13   A.   It's one of my contentions that many of the

14   terms that comprise Cisco's CLI commands come directly

16:28   15   from industry standards, come from sometimes ratified

16   standards, come from RFCs, come from IEEE standards.

17   And this goes to support my contentions that in that

18   many ways, these command abstractions and the key words

19   contained in there aren't original or creative and are

16:29   20   subject to limitations by scènes à faire, and therefore

21   if felt I needed to support those contentions by showing

22   where in these various standards these terms often come

23   from.

24   BY MR. HOLMES:

16:29   25   Q.   And did you compile all the information

1   yourself that's in Appendix A?

2   A.   I did.

3   Q.   And does Appendix A, does this include all of

4   the command abstractions, your term that, Cisco has

16:29   5   alleged Arista of copying in this case?

6   A.   Certainly not.

7   Q.   Do you know how many are missing?

8   A.   Not off the top of my head. I would just note

9   that some of them occur in Appendix B which are the IEEE

16:30   10   standard, so obviously some are missing. I don't

11   know -- I don't have a number for you.

12   Q.   Now, in Appendix A, is it your opinion that --

13   well, strike that.

14   Are any of the multi-word command abstractions

16:30   15   that you list in Appendix A, do any of those multi-word

16   command abstractions exist in any of these RFCs in the

17   exact same syntax in which Cisco has accused Arista of

18   copying them?

19   MR. WONG: Objection, compound, vague.

16:30   20   A.   Let me see if I can re-ask -- rephrase your

21   question equivalently. If I were to search for exactly

22   the syntax in the left column within the RFC I cite in

23   the right column, would I find it? Is that fair?

24   BY MR. HOLMES:

16:31   25   Q.   That's fair, probably a better way to put it.

         1   MR. WONG: Objection, compound.

         2   A.   Um, certainly the individual words. Now's if

         3   you take the whole thing including the spaces in

         4   between, I would guess yes, sometimes. Sometimes you'd

16:31   5   be off just by a hyphen. Cisco obviously joined them

         6   together with a hyphen for a reason of how their parser

         7   operates. But -- and there may be some cases where you

         8   wouldn't find a match. I hadn't done that analysis.

         9   But sitting here, I would guess that you would in many

16:31   10   cases find those words.

        11   BY MR. HOLMES:

        12   Q.   But for any of the command abstractions that

        13   you list in here, have you confirmed by searching these

        14   RFCs that any one of them resides in any of these RFCs

16:32   15   in exactly the same syntax that they're recited?

        16   A.   Yes, that was in fact an interesting question

        17   that occurred to me and that I did, for some of them.

        18   And like I said, oftentimes I found oh, it's there

        19   except for the hyphen or something like that. But I

16:32   20   didn't obviously include an analysis of doing that for

        21   every command and trying to give that alongside all this

        22   other data in the chart.

        23   MR. WONG: Same objection, compound.

        24   BY MR. HOLMES:

16:32   25   Q.   Can you tell me which one? Can you identify

1   A.   It's a summary and sorted by the second column,

2   yes.

3   Q.   And did you compile this Appendix yourself?

4   A.   With a little help from Excel.

16:53   5   Q.   That's a program, not a person?

6   A.   That's correct.

7   Q.   Okay. Let's move on to Appendix G please. Can

8   you tell me what Appendix G is?

9   A.   This is a list of, I believe, back then, 514

16:54   10   command abstractions in the left column, and in the

11   right column the number of vendors for the vendors that

12   I looked at, not including Cisco, Arista, who support

13   the given command abstraction, and this one is sorted by

14   the right-hand column.

16:54   15   Q.   And is this a summary of the data you've

16   compiled in Exhibit H or Appendix H?

17   A.   Yes.

18   Q.   And you compiled this data yourself?

19   A.   Once again, using Excel, but yes.

16:54   20   Q.   Now, I'd like to direct your attention to

21   paragraph 191 of your Opening Report. Keep Exhibit G

22   out on the side.

23   A.   Okay.

24   Q.   I'd like to discuss both with the other.

16:55   25   A.   Sure.

1   Q.   Page 88.

2   A.   Okay. What paragraph again, please?

3   Q.   191.

4   A.   191, I'm there.

16:55   5   Q.   Very bottom. Paragraph 191 says:

6   "With respect to the disputed CLI

7   commands, I also provide a summary of the

8   most widely adopted CLI commands in

9   Appendix G." Do you see that?

16:55   10   A.   I do see that.

11   Q.   So what did you mean by "widely adopted" in

12 this particular paragraph?

13   A.   I meant simply that if you can look to

14 Appendix G and take, for example, the first command

16:56   15 abstraction there listed, "IP address," which I will

16 note is not a complete command in this case, that we

17 have 17 other non Cisco, non Arista vendors who support

18 that command abstraction, and that just glancing down

19 this list, that we can go page after page and still find

16:56   20 at least six, seven, many cases ten or more other

21 vendors supporting that command abstraction.

22   Q.   Now, the commands that are listed here in

23 Appendix G -- this is not the complete set of the 508

24 asserted commands in this case, right?

16:56   25   A.   It would have been 514 back then, and I believe

1   the total number -- I don't have it numbered. I think

2   it's less, I'm pretty sure it's less, not all of them.

3   Q.   And why is that?

4   A.   Well, as you get to the back of the document,

16:57   5   we get down to one. Then if I'd included the rest,

6   they'd be zero.

7   Q.   So if a -- if an asserted command abstraction,

8   to use that term, is not listed in Appendix G, is that

9   because there were zero vendors supporting that command,

16:57   10   not including Cisco and Arista?

11   MR. WONG: Objection, vague.

12   A.   I wouldn't say there were zero vendors

13   supporting it, I would say there were zero vendors that

14   I was able to find in the manuals I had available to me.

16:57   15   Some cases, I only had one manual. In the case of

16   Procket, some manuals were destroyed as you probably

17   know. I didn't have every manual. But for the manuals

18   I did have, I found zero in those cases, yes.

19   BY MR. HOLMES:

16:57   20   Q.   And in those cases where you found zero, would

21   you consider those commands to be part of the industry

22   standard CLI?

23   MR. WONG: Objection, incomplete hypothetical.

24   A.   I'd like to look specifically at those commands

16:58   25   with that question in mind, but probably not.

1   BY MR. HOLMES:

2   Q.   And what about the commands where you only have

3   one vendor listed here in the right-hand column of

4   Appendix G, would you still consider those commands to

16:58   5   be part of the industry standard CLI?

6   MR. WONG: Objection, incomplete hypothetical.

7   A.   I wouldn't want to use just that metric to make

8   a determination. Let me give you an example. So

9   there's some commands that start with VRRP. That's a

16:58   10   protocol that a lot of vendors don't support, right.

11   And so would I say simply because it's not supported

12   it's not part of the industry standard? I don't know.

13   We're certainly in a gray area in that question.

14   As I testified to earlier, there's certain

16:58   15   commands, and I think we have plenty of examples in the

16   front of the document which are incontestably part of

17   the industry standard CLI, and I think there are also

18   commands that are incontestably not part of it because

19   they're specific to Arista, let's say. You could argue

16:59   20   that these are in the gray area -- go ahead.

21   Q.   Sorry, I didn't mean to interrupt you.

22   A.   Please.

23   Q.   At what point in Appendix G do I get out of the

24   "gray area," using your terminology?

16:59   25   A.   I don't draw a line here saying everything

1 above the line is in or out. I wouldn't want to use

2 that as the metric. Appendix G is not trying to

3 establish which commands are in and out of the industry

4 standard, it's trying to establish the fact that no

16:59   5 reasonable person could look at this and say there is no

6 industry standard, there's no widespread adoption, every

7 command is a complete rarity. That would be

8 inconsistent with what's sitting on this document in

9 front of me.

16:59   10   Q.   But would you tell somebody that a command only

11 being used by Cisco, Arista, and one other vendor is an

12 industry standard command? Is that your testimony?

13   A.   Once again, for a given command, I couldn't

14 tell you whether a command is part of or not unless it's

17:00   15 something that is clearly widely adopted by lots and

16 lots of vendors, as many, many of these are. If you can

17 point me to a specific command and ask me, I probably

18 won't be able to answer.

19   Q.   How do I know if it's clearly widely adopted by

17:00   20 lots and lots of vendors? Based on the objective data

21 that you've got here, can you tell me how I know when

22 I'm in the standard or outside the standard based on

23 your definition that you just provided?

24   A.   I mean people in my cohort, my friends, people

17:00   25 in the networking industry, they would all look at this

17:01   1   paper, and I would say, is there widespread adoption? I

         2   mean we've got 17, 16, 15 different vendors all using

         3   the same thing, if you're willing to grant me command

         4   abstractions at least, similar CLI commands, do you

17:01   5   think that that command is in widespread common use?

         6   None of my friends or colleagues are going to go no,

         7   it's a complete rarity, there's no such thing as a

         8   common widespread usage of any of these commands. I

         9   think that would be an unreasonable thing for them to

17:01   10   say and I don't think any reasonable mind could say

        11   that.

        12   Q.   Do you think any reasonable mind could say that

        13   a command where you've only found one other vendor using

        14   it is part of an industry standard though?

17:01   15   A.   I mean, I've already admitted there definitely

        16   is room for disagreement in some of these less

        17   widely-used command abstractions. I'm not contesting

        18   that there's a gray area at some point. All I'm saying

        19   is that it's plainly evident there are commands, and a

17:01   20   lot of them, that are used by a huge variety of vendors.

        21   Q.   There's no cut-off here in Appendix G where you

        22   say above seven is widely used, and below seven is not

        23   widely used?

        24   A.   There is no cut-off, nor would I think that

17:02   25   that would be an appropriate way to delineate the set.

 1   Q.   I'm just not sure I understand though. How

 2   could -- if your definition of an industry standard CLI

 3   is something that is widespread and common, how can you

 4   say that a command that's used by three vendors

17:02   5   satisfies that definition?

 6   MR. WONG: Objection, misstates the document.

 7   A.   I mean Mr. Holmes, you're a lawyer, you deal

 8   with terms all the time that have meaning but don't have

 9   a bright line threshold for what is in or what is out,

17:02 10   or what qualifies what doesn't qualify. That's the same

 11   kind of definition I'm using for industry standard.

 12   Just because we don't have a threshold, we don't have a

 13   cut-off doesn't mean a term doesn't have meaning. We

 14   have incontrovertible, highly-compelling evidence that

17:03 15   these commands are in widespread use, and that's the

 16   only message I'm trying to convey with the data

 17   presented in Appendix G.

 18   BY MR. HOLMES:

 19   Q.   So is it your opinion that all of the commands

17:03 20   you've listed here in Appendix G are in widespread use?

 21   MR. WONG: Objection, misstates testimony and

 22   compound.

 23   A.   It's certainly my opinion that there is ample

 24   evidence that many of these commands are in widespread

17:03 25   use based on the number in the right-hand column. I've

1   already admitted there's a gray area when you go down

2   the list sufficiently far, but I don't want to draw a

3   line for the reason I state.

4   BY MR. HOLMES:

17:03   5   Q.   And you're not willing to state all of the

6   commands in Exhibit G are in widespread use, right?

7   A.   Appendix G?

8   MR. WONG: Vague.

9   BY MR. HOLMES:

17:04   10   Q.   Appendix -- let me restate the question.

11   You're not willing to state right now that all

12   of the commands listed in Appendix G are in widespread

13   use in the industry, correct?

14   A.   No, I won't say that.

17:04   15   Q.   Can I ask you a question about -- the page

16   numbers are not -- Appendix G doesn't have any page

17   numbers on it.

18   A.   I apologize.

19   Q.   But if you can -- it's one, two, three, four,

17:04   20   five physical pieces of paper, so I guess there's a

21   break and you've got the end of a first take.

22   A.   I'm there.

23   Q.   Okay, you've got an asterisk here at the

24   bottom -- I'm sorry, in the middle of the page at the

17:04   25   end of the first table there's an asterisk with a list

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     1   of vendor names, do you see that?

     2        A.   Yes, sir.

     3        Q.   Okay.  Can you tell me what's the purpose of

     4   that?

17:04
     5        A.   When you say "that" do you mean --

     6        Q.   What's the purpose of the asterisks listing

     7   only specific vendor names?

     8        A.   I see.  So if you refer to the heading of the

     9   second column which is on the first page, the heading

17:05
    10   says:  "Vendors supporting command not including Cisco

    11   or Arista," and it has an asterisk, and that asterisk

    12   refers to this note that you just identified, to

    13   identify which vendors are being considered when

    14   compiling these numbers.

17:05
    15        Q.   And is there a reason why, for instance we

    16   don't see DEC on here?

    17        A.   The reason is that DEC isn't considered, except

    18   for when I noted that HP has essentially absorbed DEC.

    19        Q.   Sorry, my question is, why didn't you include

17:05
    20   DEC on this table?

    21             MR. WONG:  Vague and ambiguous.

    22        A.   What DEC product would you like to have

    23   included?  I identified DEC RSX, DEC TOPS-20, DEC VMS,

    24   DCL, DEC B router, then DEC products that got absorbed

17:06
    25   by Compaq, then HP.  HP is here.  So I'm not sure what
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17:07

17:07

17:08

17:08

17:09

1 context of showing historical products that were

2 produced, developed, sold, and marketed by Digital

3 Equipment Corporation to support my contention that many

4 of the features in Cisco's original products were not

5 original because they pre-dated Cisco.

6 BY MR. HOLMES:

7   Q.   Is there a reason why Quagga is not listed

8 here?

9   A.   Quagga is also not a switch, it's a piece of

10 software. As I mentioned before, it's probably not on

11 the same footing as these major players. It's not

12 listed in Appendix H as I've noted before. It's

13 discussed independently in the body of my report where I

14 give a table with the command abstractions and all that

15 separately.

16   Q.   And when you list Juniper, this is Junos E,

17 correct?

18   A.   Yes, it is. I probably should have noted that.

19 (Pause in the proceedings.)

20   Q.   Is there a reason why Bay Networks is not

21 listed in here?

22   MR. WONG: Objection, vague.

23   A.   Bay is a long-gone company, WealthE (phonetic)

24 was acquired by Bay, Bay was acquired by Nortel. As you

25 pointed out mNortel was acquired by Avaya. To the

1   extent any Bay products still exist they would be

2   incorporated under the Avaya heading.

3   BY MR. HOLMES:

4   Q.   What about Checkpoint?

17:09   5   MR. WONG: Objection, vague.

6   A.   I honestly don't remember the history of

7   Checkpoint, if they got acquired or dissolved. They're

8   not around any more as far as I know.

9   BY MR. HOLMES:

17:09   10   Q.   Have you done anything to confirm whether or

11   not they're still around?

12   A.   No, I haven't.

13   Q.   So it's possible they are still an operating

14   company?

17:09   15   A.   It's possible. They're not one of the vendors

16   that I remember I described how I made my list. They

17   didn't come to mind.

18   Q.   What about Dark Star, is there any reason why

19   Dark Star is not listed here?

17:09   20   A.   I've never heard of Dark Star.

21   Q.   How about F5, is there a reason F5 is not

22   listed here?

23   A.   I've certainly heard of F5, they're huge, but

24   I'm not sure if they sell switches.

17:10   25   Q.   What about Pearl Systems, is there a reason

1   why --

2   A.   I've never heard of Pearl Systems.

3   Q.   Let's move on to H please. Oh, wait -- sorry,

4   one last question: You have a second chart on here,

17:10   5   right, second table?

6   A.   Correct.

7   Q.   And can you explain why you created this second

8   table in Appendix G?

9   A.   So this table is the same thing as the first

17:10   10   half of the document restricted to the listed 1, 2, 3,

11   4, 5 vendors. Mark Chandler, I'm sure you know him,

12   general counsel for Cisco, published a blog a year and a

13   half, two years ago called "protecting innovation" that

14   substantiates Cisco's position on why they decided to

17:11   15   pursue litigation against Arista, and in the body of

16   that blog he lists these five vendors as having only a

17   small fraction of overlap and presumably, therefore,

18   escaping any threat of litigation by Cisco. I thought

19   it was interesting to look at the degree of overlap

17:11   20   between Cisco's command abstractions and those various

21   named vendors in his blog.

22   Q.   So was the purpose of this just to rebut what

23   his statements were in his blog?

24   A.   No, no, I'm not attempting to rebut his

17:11   25   statements. I'm attempting to provide a factual basis

17:12   1   for any attorneys that want to take these facts and make

           2   legal arguments out of them. But I wouldn't presume to

           3   say that, you know, I have a legal argument myself in

           4   presenting the data. I'm just presenting the data.

17:12   5   Q.   Let's move on to H, please.

           6   MR. WONG: Just for the record, we were talking

           7   about Exhibit --

           8   MR. HOLMES: Appendix H to the Opening Report

           9   of Dr. Black.

17:12   10   A.   By Appendix H you mean the collection of all of

          11   them maybe?

          12   MR. HOLMES: Yeah, just the whole thing.

          13   THE WITNESS: Okay.

          14   BY MR. HOLMES:

17:12   15   Q.   Can you generally explain to me what Appendix H

          16   is?

          17   A.   Sure. Appendix H is broken into several

          18   subsets, each one hopefully, helpfully named with the

          19   first letter or two of the vendor for each subsection.

17:12   20   This is a spreadsheet once again in the left column,

          21   "disputed Cisco command." Once again we're talking

          22   about 514, because this is before I received

          23   Dr. Almeroth's Opening Report when it was reduced to

          24   508.

17:13   25   In the left column you see disputed Cisco